



SPP *Southwest Power Pool*

***System Impact Study SPP-2001-124
For Transmission Service
Requested By
Western Resources Generation
Services***

From WR to KCPL

***For a Reserved Amount Of 50MW
From 6/1/01
To 9/1/01***

SPP Transmission Planning

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1. Executive Summary

Western Resources has requested a system impact study for Monthly Firm transmission service from WR to KCPL. The period of the transaction is from 6/1/01 to 9/1/01. The request is for reservation 243729 for the amount of 50MW.

The 50MW transaction from WR to KCPL has a positive response on the Midland 161/115kV Tr, Hoyt to Stranger flowgate. The impact of this transfer will cause the Midland 161/115kV transformer to overload for the loss of the Hoyt to Stranger, 345kV line. To provide the ATC that is necessary for this transfer, the impact on this flowgate must be relieved.

It has been determined that there is not sufficient time available to complete any upgrades to the system that would relieve this flowgate.

Redispatch was looked at as an option to relieving the impact on the Midland 161/115kV Tr, Hoyt to Stranger flowgate caused by the 50MW transfer.

Those companies owning units, which through increasing or decreasing generation will relieve the impact on the Midland 161/115kV Tr, Hoyt to Stranger flowgate, were given the opportunity to participate in the redispatch of those units. Those companies declined to participate in redispatch. Therefore, there are no options available to relieve the impact on this flowgate caused by the 50MW WR to KCPL transfer.

2. Introduction

Western Resources has requested an impact study for transmission service from WR to KCPL

The Midland 161/115kV Tr, Hoyt to Stranger flowgate has been identified as a limiting constraint for the WR to KCPL transfer. For this flowgate, the Midland 161/115kV transformer is monitored during the loss of the Hoyt to Stranger, 345kV line. It has been determined that the 50MW transfer from WR to KCPL will cause the transformer to overload should the loss of the Hoyt to Stranger line occur.

There are no facility upgrades available to relieve this flowgate that can be completed in the time period available. This impact study reviews redispatch as an option to relieving the transmission restraint.

3. Study Methodology

A. Description

Southwest Power Pool used the NERC Generator Sensitivity Factor (GSF) Viewer to obtain possible unit pairings which would relieve the constraint. The GSF viewer calculates impacts on monitored facilities for all units above 20MW in the Eastern Interconnection. The Midland 161/115kV Tr, Hoyt to Stranger flowgate is included in the flowgate list.

B. Model Updates

The 2001 Southwest Power Pool Summer Peak model was used for the study. This model was updated to reflect the most current information available.

C. Transfer Analysis

Using the short-term calculator, the limiting constraint for the transfer is identified. The response factor of the transfer on that constraint is also determined.

4. Study Results

A. Study Analysis Results

NERC calculates shift factors on specified facilities for all generation units over 20MW in the Eastern Interconnection. NERC also provides a list of the Top 100 Relief pairs for a specified constraint. These generation shift factors were reviewed for impacts on the Midland 161/115kV Tr, Hoyt to Stranger flowgate for the redispatch assessment. SPP generators with both negative and positive impacts were available. Those with negative impacts would reduce transformer flows when unit output is increased. The generators with positive impacts would increase flows when unit output is increased and reduce flows when unit output is decreased. There are several redispatch options within SPP for pairing units with positive impacts to units with negative impacts.

The distribution factor on the Midland 161/115kV Tr, Hoyt to Stranger flowgate for the WR to KCPL transfer is 7.7%. A redispatch would be required to relieve the 3.9MW impact on the constraint under emergency conditions.

Table 1 documents the SPP generators top 40 relief pairs for the Midland 161/115kV Tr, Hoyt to Stranger flowgate.

Table 1: Top 40 Relief Pairs of SPP Generators

Source	Sink	Factor	Source	Sink	Factor	Source	Sink	Factor
KACY_NEARMAN5 161_1	WR_LEC U3 14.4_1	-27	KACY_QUIN 269.0_1	WR_LEC U3 14.4_1	-27	KACY_QUIN 269.0_2	WR_LEC U3 14.4_1	-27
KACY_QUIN 269.0_4	WR_LEC U3 14.4_1	-27	KACY_QUIN 269.0_5	WR_LEC U3 14.4_1	-27	KACY_KAW 269.0_1	WR_LEC U3 14.4_1	-26.9
KACY_KAW 269.0_2	WR_LEC U3 14.4_1	-26.9	KACY_KAW 269.0_3	WR_LEC U3 14.4_1	-26.9	KACY_NEARMAN5 161_1	WR_LEC U4 14.4_1	-26
KACY_QUIN 269.0_1	WR_LEC U4 14.4_1	-26	KACY_QUIN 269.0_2	WR_LEC U4 14.4_1	-26	KACY_QUIN 269.0_4	WR_LEC U4 14.4_1	-26
KACY_QUIN 269.0_5	WR_LEC U4 14.4_1	-26	KACY_KAW 269.0_1	WR_LEC U4 14.4_1	-25.9	KACY_KAW 269.0_2	WR_LEC U4 14.4_1	-25.9
KACY_KAW 269.0_3	WR_LEC U4 14.4_1	-25.9	KCPL_GA CT 113.8_7	WR_LEC U3 14.4_1	-25.9	KCPL_GA CT 113.8_9	WR_LEC U3 14.4_1	-25.9
KCPL_GA CT 113.8_7	WR_LEC U4 14.4_1	-24.9	KCPL_GA CT 113.8_9	WR_LEC U4 14.4_1	-24.9	KACY_NEARMAN5 161_1	WR_LEC U5 24.0_1	-23.5
KACY_QUIN 269.0_1	WR_LEC U5 24.0_1	-23.5	KACY_QUIN 269.0_2	WR_LEC U5 24.0_1	-23.5	KACY_QUIN 269.0_4	WR_LEC U5 24.0_1	-23.5
KACY_QUIN 269.0_5	WR_LEC U5 24.0_1	-23.5	KACY_KAW 269.0_1	WR_LEC U5 24.0_1	-23.4	KACY_KAW 269.0_2	WR_LEC U5 24.0_1	-23.4
KACY_KAW 269.0_3	WR_LEC U5 24.0_1	-23.4	KCPL_GA CT 113.8_7	WR_LEC U5 24.0_1	-22.4	KCPL_GA CT 113.8_9	WR_LEC U5 24.0_1	-22.4
KACY_NEARMAN5 161_1	WR_TEC U8 16.0_1	-13.4	KACY_QUIN 269.0_1	WR_TEC U8 16.0_1	-13.4	KACY_QUIN 269.0_2	WR_TEC U8 16.0_1	-13.4
KACY_QUIN 269.0_4	WR_TEC U8 16.0_1	-13.4	KACY_QUIN 269.0_5	WR_TEC U8 16.0_1	-13.4	KACY_NEARMAN5 161_1	WR_TEC U7 14.4_1	-13.4
KACY_QUIN 269.0_1	WR_TEC U7 14.4_1	-13.4	KACY_QUIN 269.0_2	WR_TEC U7 14.4_1	-13.4	KACY_QUIN 269.0_4	WR_TEC U7 14.4_1	-13.4
KACY_QUIN 269.0_5	WR_TEC U7 14.4_1	-13.4						

5. Conclusion

The SPP Regional Tariff participants were given the opportunity to include their units for redispatch in order to provide relief on the flowgates impacted by a certain transaction. The participants owning units that would relieve the flowgate impacted by the 50MW WR to KCPL transfer declined to participate in the redispatch of those units. No other options are available to provide the capacity needed for the 50MW transfer. Therefore the request for monthly service from WR to KCPL must be refused due to the impact on the Midland 161/115kV Tr, Hoyt to Stranger flowgate.